

CITY OF DONNELLY (PWS 4430019) SOURCE WATER ASSESSMENT FINAL REPORT

June 25, 2001



State of Idaho Department of Environmental Quality

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Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

This report, *Source Water Assessment for City of Donnelly, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

Although the City of Donnelly drinking water system has used multiple wells in the past the City derives its drinking water from only one well at present. Well #4 has experienced maximum contaminant level (MCL) exceedances for iron and manganese in 1992 which led to an overall high risk rating for susceptibility to inorganic contamination and a moderate risk rating for volatile organic contamination, and synthetic organic contamination. Although a trace amount of cyanide and barium were detected in a water sample taken from Donnelly's water storage tank in 1992, subsequent water chemistry tests have recorded no further detections of these contaminants.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the City of Donnelly, source water protection activities should focus on implementation of best management practices aimed at protecting the wellhead and surface seal within the zone immediate to the well. Urban and residential runoff should be monitored. While spill prevention should be the focus for good water quality, any spills and accidents from businesses within the jurisdiction of the City and particularly along Highway 55 should be closely monitored and dealt with. The addition of any significant quantity of agricultural land within the designated source water protection areas should be closely monitored. Otherwise; the susceptibility to contamination could increase. A portion of the source water protection designated areas are outside the direct jurisdiction of the City of Donnelly. Partnerships with state and local agencies and industry groups should be established and are critical to success. Disinfection practices should be maintained to reduce the risk of microbial contamination. Due to the time involved with the movement of ground water, source water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Source water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the Valley Soil and Water Conservation District, and the Natural Resources Conservation Service.

A community with a fully developed source water protection program will incorporate many strategies. For assistance in developing protection strategies please contact the Boise Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR CITY OF DONNELLY, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is attached.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Wellhead or source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The public drinking water system for the City of Donnelly is comprised of a single well. The community well serves approximately 135 people with 85 connections. Specifically the City of Donnelly Well #4 is located 2 blocks west of Highway 55 in the northwest corner of Donnelly's City limits within Valley County and approximately one mile east Cascade Reservoir (Figure 1).

No significant water chemistry problems have been recorded in relation to the public water system since 1992 when one sampling event detected inorganic contaminants (IOCs) iron and manganese exceeding Maximum Contaminant Level (MCL) as established by Federal and State law. In 1994 the IOCs fluoride and cyanide were detected in a sample taken from the water storage tank, but at levels well below the MCL. There is no known source for cyanide in the area and it is highly probable that the trace amount of cyanide reported may have been due to a sampling or analysis error. No detections of microbials, volatile organic contaminants (VOCs) or synthetic organic contaminants (SOCs) have been recorded.

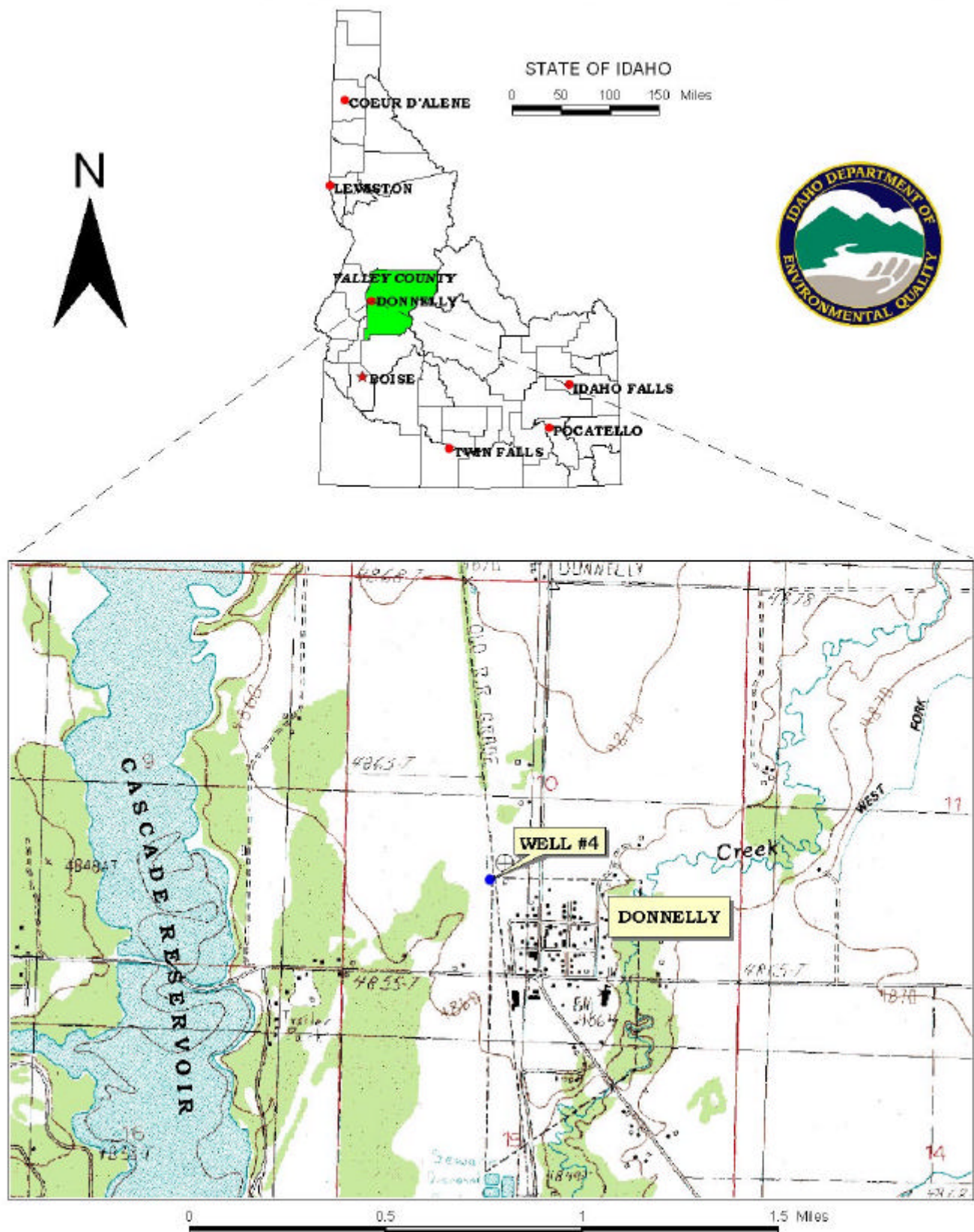
Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ used a refined computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water associated with the glacial sediment aquifer in the vicinity of the City of Donnelly. The computer model used site specific data, assimilated by DEQ from a variety of sources including the City of Donnelly well logs, other local area well logs, and hydrogeologic reports summarized below.

The Donnelly City well takes water from upper units of the very thick (7000'+) sequence of fluvial and glacial sediments that dominate the Long Valley area. Regional ground water recharge appears to follow the Cascade Reservoir and Payette River valley from north to south. The groundwater conductivity of the valley sediments is at least an order of magnitude greater than the granitic rocks of the Idaho Batholith that boarder Long Valley (Parlman, 1980).

The delineated source water assessment area for City of Donnelly Well #4 can best be described as an oval-shaped corridor approximately ½ to 1 mile wide and 2 miles long extending north along the east side of Cascade Reservoir (Figure 2). The actual data used by DEQ in determining the source water assessment delineation areas are available upon request.

FIGURE 1. Geographic Location of the City of Donnelly



Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

The dominant land use outside the City of Donnelly area is irrigated agriculture. Land use within the immediate area of the wellhead consists of irrigated pastureland and residential.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination. These involve educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted from December 2000 to January 2001. The first phase involved identifying and documenting any potential contaminant sources within the City of Donnelly Source Water Assessment Area through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to validate the sources identified in phase one and to add any additional potential sources in the area. As a result of this effort seven potential contaminant sources could be identified within the area of influence of the well.

Well #4, located in the northwest corner of Donnelly's City boundaries, has a delineation that encompasses roughly two square miles in Long Valley north of Donnelly and east of Cascade Reservoir. The delineation area contains seven potential contaminant sites. The sources include two leaky underground petroleum storage tanks (LUSTs), two additional service stations with underground storage tanks (USTs), the City's wastewater land application site and Highway 55 which is a potential source for all types of contaminants. Figure 2 shows the location of these various potential contaminant sites relative to the wellhead. Table 1 lists the potential contaminant sources.

Table 1. City of Donnelly Well #4, Potential Contaminant Inventory

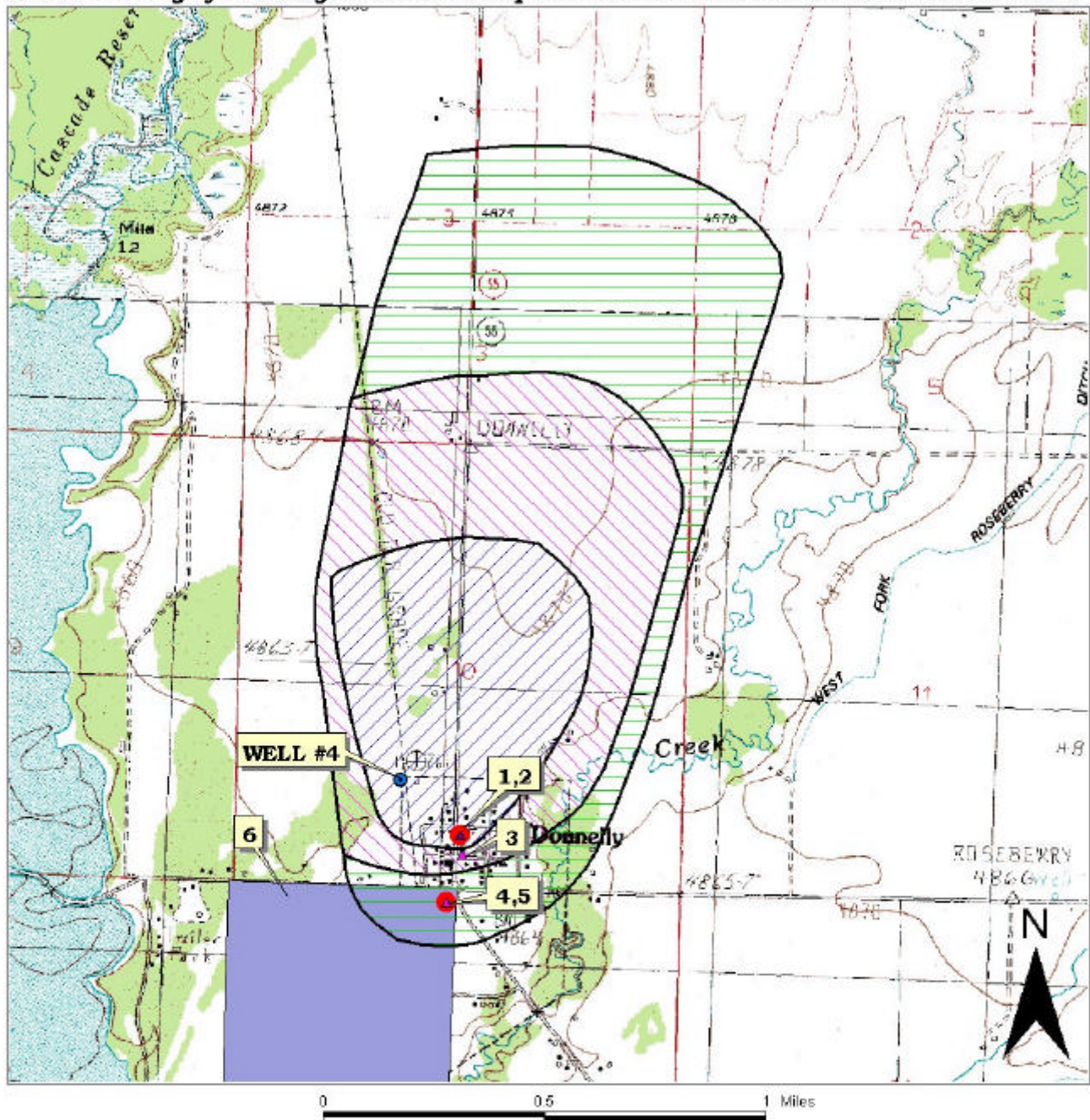
SITE #	Source Description ¹	TOT Zone ² (years)	Source of Information	Potential Contaminants ³
1	LUST – incomplete cleanup	0-3	Database Search	VOC, SOC
2 (see #1)	UST – closed	0-3	Database Search	VOC, SOC
3	UST – open gas station	3-6	Database Search	IOC, VOC, SOC
4	LUST – incomplete cleanup, impact to ground water	6-10	Database Search	VOC, SOC
5 (see #4)	UST – open	6-10	Database Search	VOC, SOC
6	Wastewater Treatment Plant	6-10	Database Search	IOC, VOC, SOC, M
7	Highway 55	0-3,6,10	Database Search	IOC, VOC, SOC, M

¹ LUST = leaking underground storage tank, UST = underground storage tank,

² TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

³ IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical
M = microbials

FIGURE 2. City of Donnelly Delineation Map and Potential Contaminant Source Locations



PWS# 4430019
WELL #4

Section 3. Susceptibility Analyses

The water system's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

Hydrologic sensitivity is moderate for Well #4 (Table 2). This reflects the nature of the soils being in the moderate to well-drained class, the vadose zone (zone from land surface to the water table) being made predominantly of unconsolidated alluvium, and the first ground water being located within 300 feet of ground surface. Additionally, given the fluvial environment with rapidly varying lateral stratigraphy, the extended area around the well probably does not have laterally extensive low permeability units that could retard downward movement of contaminants.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. The City of Donnelly drinking water system consists of one well that extract ground water for residential, commercial, and industrial uses. The well system construction scores indicate low risk for the well.

A sanitary survey for Well #4 was completed in October 1997. Information from that report indicates that Donnelly's well supplies a storage tank from which water is boosted to town. The booster pump building is located next to the storage tank. The old wells (Wells #1, #2, #3) have been abandoned. The distribution system has recently been rehabilitated. Upon completion of some minor corrections and enclosure of the well's electrical panel, Well #4 will be in compliance with wellhead and surface seal standards. The well casing is raised at least 18 inches above floor to protect it from flooding and a maintained wellhead seal with a downturned, screened casing vent is present. The well log indicates that the casing and annular seal are extended into low permeability units. With the exception of recently upgraded casing thickness requirements, current public water system (PWS) construction standards are being met.

Although the driller's description is ambiguous it appears that Well #4 has 0.277-inch thick, 12-inch diameter steel casing from 2 feet above ground surface to the depth of 382 feet bgs where it is seated in blue clay. Telescoped inside the upper casing is 6 inch diameter steel casing from 368 feet bgs to the total depth of the hole TD at 522 feet bgs. Five separate screened intervals in the 6-inch steel casing from 386 feet to 514 feet bgs result in a total screened interval of 55 linear feet of groundwater intake. The water table was identified at 35 feet bgs.

The IDWR Well Construction Standards Rules (1993) require all PWSs to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the Recommended Standards for Water Works (1997) during construction. Table 1 of the Recommended Standards for Water Works (1997) lists the

required steel casing thickness for various diameter wells. Twelve-inch diameter casing on wells requires a casing thickness of at least 0.375-inches. Therefore, this well does not meet current construction standards.

Potential Contaminant Sources and Land Use

Based on land use alone, Well #4 scored low risk. However, with over 90 percent of the delineated area being irrigated pasture it is important that potential agricultural-related contamination be looked for, monitored and dealt with immediately if it occurs. Obviously, the maintenance of high water quality in Cascade Reservoir is essential to facilitate continued high water quality for the Long Valley/Round Valley Aquifer.

Final Susceptibility Ranking

A detection above a drinking water standard MCL or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year time of travel zone (Zone 1B) and a large percentage of agricultural land contribute greatly to the overall ranking. In terms of total susceptibility, Well #4 rates high risk for IOCs and moderate for VOCs, SOC and microbials.

Table 2. Summary of City of Donnelly Susceptibility Evaluation

Well	Susceptibility Scores ¹									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #4	M	H	L	L	L	L	H	M	M	M

M = Moderate Susceptibility, L = Low Susceptibility,

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

Although water quality is good, Well #4 rated high risk for IOCs (i.e. iron and manganese) and moderate for SOCs (i.e. pesticides), VOCs (i.e. petroleum products) and microbial contaminants. These ratings are based on an MCL exceedance, the presence of irrigated pastureland and the occurrence of seven specific potential contaminant sites within the delineation area. Obviously, the maintenance of high water quality in Cascade Reservoir is essential to facilitate continued high water quality for the Long Valley/Round Valley Aquifer.

Section 4. Options for Source Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully developed source water protection program will incorporate many strategies. For the City of Donnelly, source water protection activities should focus on implementation of practices aimed at protecting the area nearest the wells. The City of Donnelly should also be diligent about local businesses that are regulated by the various environmental regulations (RCRA, CERCLA, SARA) or those with potential inorganic contaminants. Though water quality is generally good for the City of Donnelly, the maintenance of high water quality in Cascade Reservoir is essential for continued high water quality in the area’s groundwater. Any surface releases should be monitored closely to prevent contaminants from infiltrating to the ground water producing zones including the Reservoir. Some of the designated source water protection areas are outside the direct jurisdiction of the City of Donnelly. Partnerships with state and local agencies and industry groups should be established and are critical to success. Continued vigilance in keeping the well protected from surface flooding can also keep the potential for contamination reduced. Due to the time involved with the movement of ground water, wellhead protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Source water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the Valley Soil and Water Conservation District, and the Natural Resources Conservation Service.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Boise Regional DEQ Office (208) 373-0550

State DEQ Office (208) 373-0502

Website: <http://www2.state.id.us/deq>

Water suppliers serving fewer than 10,000 persons may contact John Bokor, Idaho Rural Water Association, at (208) 743-6142 for assistance with wellhead protection strategies.

POTENTIAL CONTAMINANT INVENTORY

LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. "Recommended Standards for Water Works."

Idaho State Department of Agriculture, 1998. Unpublished Data.

Idaho Department of Environmental Quality, 1997. Design Standards for Public Drinking Water Systems. IDAPA 58.01.08.550.01.

Idaho Department of Water Resources, 1993. Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules. IDAPA 37.03.09.

Idaho Water Resource Board, 1973. Comprehensive Rural Water and Sewerage Planning Study for Washington County. U.S. Geological Survey (prepared in cooperation with University of Idaho, Washington State University and the cities of Moscow, Idaho and Pullman, Washington), Water Resources Investigations Report 89-4103, 73 p.

Lum II, W.E., J.L. Smoot, and D.R. Ralston, 1990. Geohydrology and Numerical Model Analysis of Groundwater Flow in the Pullman-Moscow Area, Washington and Idaho.

Parlman, 1929. Quality of Groundwater in the Payette River Basin, Idaho, USGS, WRI Report 86-4013.

Attachment A

City of Donnelly
Susceptibility Analysis
Worksheet

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)
- 2) 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

1. System Construction

SCORE

Drill Date	NO	
Driller Log Available	NO	
Sanitary Survey (if yes, indicate date of last survey)	NO	0
Well meets IDWR construction standards	NO	1
Wellhead and surface seal maintained	NO	1
Casing and annular seal extend to low permeability unit	NO	2
Highest production 100 feet below static water level	NO	1
Well located outside the 100 year flood plain	NO	1

Total System Construction Score 0

2. Hydrologic Sensitivity

Soils are poorly to moderately drained	NO	2
Vadose zone composed of gravel, fractured rock or unknown	NO	0
Depth to first water > 300 feet	NO	1
Aquitard present with > 50 feet cumulative thickness	YES	0

Total Hydrologic Score 3

3. Potential Contaminant / Land Use - ZONE 1A

IOC Score	VOC Score	SOC Score	Microbial Score
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Land Use Zone 1A	IRRIGATED PASTURE	1	1	1	1
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	YES	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		1	1	1	1

Potential Contaminant / Land Use - ZONE 1B

Contaminant sources present (Number of Sources)	YES	1	1	1	1
(Score = # Sources X 2) 8 Points Maximum		2	2	2	2
Sources of Class II or III leacheable contaminants or	YES	1	2	2	
4 Points Maximum		1	2	2	
Zone 1B contains or intercepts a Group 1 Area	YES	2	2	2	2
Land use Zone 1B Greater Than 50% Irrigated Agricultural Land		4	4	4	4

Total Potential Contaminant Source / Land Use Score - Zone 1B 9 10 10 8

Potential Contaminant / Land Use - ZONE II

Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II Greater Than 50% Irrigated Agricultural Land		2	2	2	

Potential Contaminant Source / Land Use Score - Zone II 5 5 5 0

Potential Contaminant / Land Use - ZONE III

Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	

Total Potential Contaminant Source / Land Use Score - Zone III 3 3 3 0

Cumulative Potential Contaminant / Land Use Score

18 19 19 9

4. Final Susceptibility Source Score

7 7 7 6

5. Final Well Ranking

High Moderate Moderate Moderate